REMARKS

Claims 1-28 are currently pending in the subject application and are presently under consideration. In the specification, the Abstract has been amended to correct minor editorial problems in response to the Examiner's objection to use of the word "disclosed." A version of the amended Abstract is presented at page 2.

Favorable reconsideration of the subject patent application is respectfully requested in view of the comments and amendments herein.

I.   **Rejection of Claims 1-6, 8, 11-21, 23 and 26-28 Under 35 U.S.C. §102(b)**

Claims 1-6, 8, 11-21, 23 and 26-28 stand rejected under 35 U.S.C. §102(b) as being anticipated by DiCarlo (U.S. 5,519,726). It is respectfully requested that this rejection be withdrawn for at least the following reason. DiCarlo does not teach or suggest each and every limitation as recited in the subject claims.

> A single prior art reference anticipates a patent claim only if it expressly or inherently describes each and every limitation set forth in the patent claim. *Trintec Industries, Inc. v. Top-U.S.A. Corp.*, 295 F.3d 1292, 63 USPQ2d 1597 (Fed. Cir. 2002); *See Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the … claim. *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

The claimed invention relates to low overhead *synchronized activation* of functional modules. In particular, the claimed invention provides for systems and/or methods for synchronizing one or more modules of an industrial controller to synchronize sampling of inputs and/or application of outputs with respect to a common time base. Modules can be, for example, I/O modules. Such I/O modules provide an interface between inputs from, and outputs to external equipment. A location from where inputs can be received and to where outputs can be sent may collectively be referred to as a field side connection. In addition to the field side connection, the module includes a communications link for receiving a coordinated system time base signal. The module is programmed to *control activation* of the field side input or output based on an activation interval value. The module *synchronizes activation of the field side as a*

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function of the coordinated system time base signal. The *activation interval* can, for instance, correspond to an application interval for controlling periodic application of at least one output of the module. Specifically, independent claim 1 recites a *...module ...programmed to synchronize the activation interval ...relative to the coordinated system time base value.* Independent claims 13, 18 and 19 recite a similar limitation(s).

DiCarlo does not teach or suggest such claimed features of applicants' invention. Rather, the cited reference relates to industrial controllers establishing a common time signal for coordinating actions among separated functional modules. (*See* col. 1, ln. 8-10) DiCarlo discloses a method for providing a standard coordinated time throughout spatially separated functional modules of an industrial controller. (*See* Abstract) When a module is in a time-master mode, it can transmit a time value on a communication link derived from that module's internal clock and a quality value derived from the quality of the time-master module's internal clock. (*See* col. 2, ln. 10-13) Such time-master module can switch to a dependent mode when it receives a message from the communication link indicating the presence of another module with an internal clock of greater quality. (*See* col. 2, ln. 13-16) Once in dependent mode, the module can return to time-master mode once the communication link indicates the presence of no other module with an internal clock of greater quality. (*See* col. 2, ln. 19-22) In addition, DiCarlo discloses that a principal use of the coordinated system time is to ensure simultaneity of actions between modules separated across communication links. (*See* col 5, ln 66-67 – col. 6, ln. 1) Hence, while the cited reference discloses that different modules can be instructed to execute the sampling of a signal at a common time (*See* col. 6, ln. 1-7), it is silent towards *a module programmed to synchronize an activation interval relative to a coordinated system time base value* as in applicants' claimed invention.

In view of at least the forgoing, it is respectfully submitted that DiCarlo does not teach or suggest applicants' invention as recited in the subject claims, and withdrawal of this rejection is requested.

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II.   Rejection of Claims 1-6, 8, 11-21, 23 and 26-28 Under 35 U.S.C. §102(b)

Claims 1-6, 8, 11-21, 23 and 26-28 stand rejected under 35 U.S.C. §102(b) as being anticipated by Husted *et al.* (U.S. 5,887,029). It is respectfully requested that this rejection be withdrawn for at least the following reason. Husted *et al.* does not teach or suggest each and every limitation as recited in the subject claims.

In particular, Husted *et al.* does not disclose or make obvious a *module programmed to synchronize an activation interval relative to a coordinated system time base value* as recited in the subject claims. The cited reference teaches a method of precise coordination of separated components of an industrial control system. (*See* col. 1, ln. 66-76 – col. 2, ln. 1) Husted *et al.* discloses a synchronized coordinated system time-base generated to provide a substantially identical system time value at I/O modules. An industrial controller then transmits a time conditional command with an execution time value T to at least two I/O modules on a communication link. Such I/O modules are *programmed to perform predetermined control actions* only after receiving the time conditional commands but not until the system time value has attained a predetermined mathematical relationship to the execution time value T. (*See* col. 2, ln. 17-32) Hence, while Husted discloses modules programmed to perform predetermined *control actions at a specific time value*, it is silent towards *programming a module to synchronize an activation interval relative to the coordinated system time base value.*

Accordingly, this rejection should be withdrawn.

III.   Rejection of Claims 7 and 22 Under 35 U.S.C. §103(a)

Claims 7 and 22 stand rejected under 35 U.S.C. §103(a) as being unpatentable over DiCarlo in view of Benson *et al.* (U.S. 6,202,085). It is respectfully submitted that this rejection should be withdrawn for at least the following reasons. Neither DiCarlo nor Benson *et al.* individually or in combination, teach or suggest all limitations recited in the subject claims.

Claims 7 and 22 depend from independent claims 1 and 19, respectively, and Benson does not make up for the aforementioned deficiencies of DiCarlo regarding these claims. Benson relates a system and method for incremental change synchronization among multiple copies of data (*See* Abstract), and does not teach or suggest applicants' claimed invention. Accordingly, withdrawal of this rejection is respectfully requested.

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IV.   Rejection of Claims 7 and 22 Under 35 U.S.C. §103(a)

Claims 7 and 22 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Husted *et al.* in view of Benson *et al.* It is respectfully submitted that this rejection should be withdrawn for at least the following reasons. Benson *et al.* does not make up for the aforementioned deficiencies of Husted *et al.* regarding claims 1 and 19, from which the subject claims respectively depend. Hence, the cited art, individually or in combination, fail to teach or suggest all the limitations recited in the subject claims. Accordingly, applicants' representative respectfully requests withdrawal of this rejection.

V.   Rejection of Claims 9, 10, 24 and 25 Under 35 U.S.C. §103(a)

Claims 9, 10, 24 and 25 stand rejected under 35 U.S.C. §103(a) as being unpatentable over DiCarlo in view of Ernst (EP 0385134). It is respectfully submitted that this rejection should be withdrawn for at least the following reasons. Claims 9 and 10 depend from independent claim 1, and claims 24 and 25 depend from independent claim 19 - Ernst fails to make up for the aforementioned deficiencies of DiCarlo with respect to these independent claims. Rather, Ernst teaches a resynchronization method that tests whether the difference between the clock signal and a reference clock signal exceeds a specified threshold. Hence, neither DiCarlo nor Ernst, individually and in combination, teach or suggest all the limitations as recited in the subject claims. Withdrawal of this rejection is respectfully requested

VI.   Rejection of Claims 9, 10, 24 and 25 Under 35 U.S.C. §103(a)

Claims 9, 10, 24 and 25 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Husted *et al.* in view of Ernst. Applicants' representative respectfully submits that Ernst fails to make up for the aforementioned deficiencies of Husted *et al.* regarding independent claims 1 and 19 (of which the subject claims respectively depend there from) Withdrawal of this rejection is requested.

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Conclusion

The present application is believed to be in condition for allowance in view of the above comments and amendments. A prompt action to such end is earnestly solicited.

In the event any fees are due in connection with this document, the Commissioner is authorized to charge those fees to Deposit Account No. 50-1063.

Should the Examiner believe a telephone interview would be helpful to expedite favorable prosecution, the Examiner is invited to contact applicants' undersigned representative at the telephone number below.

Respectfully submitted,

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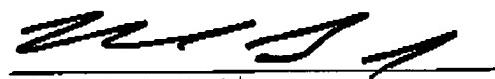
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